AASHTO Materials Reference Laboratory

On-Site Assessment Program

A Compilation of AASHTO Footnotes

22nd Bituminous Assessment Tour

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ASPHALTS CEMENTS AND LIQUID ASPHALTS

AASHTO TEST METHOD	NUMBER OF LABORATORIES	LABORATORIES IN CONFORMANCE	LABORATORIES OUT OF CONFORMANCE	PERCENTAGE IN CONFORMANCE
T44	91	59	32	64.8
T48	119	33	86	27.7
T49	137	69	68	50.4
T50	47	17	30	36.2
T51	87	46	41	52.9
T53	78	39	39	50.0
T55	27	26	1	96.3
T78	54	17	37	31.5
T79	36	14	22	38.9
T179	56	31	25	55.4
T201	107	55	52	51.4
T202	115	55	60	47.8
T228	120	64	56	53.3
T240	123	16	107	13.0
T295	30	16	14	53.3
PP1	124	36	88	29.0
TP1	123	8	115	6.5
TP5	130	20	110	15.4
TP48	109	28	81	25.7

EMULSIFIED ASPHALTS

AASHTO TEST METHOD	NUMBER OF LABORATORIES	LABORATORIES IN CONFORMANCE	LABORATORIES OUT OF CONFORMANCE	PERCENTAGE IN CONFORMANCE
Distillation	68	42	26	61.8
Evaporation	59	49	10	83.0
Particle Charge	51	38	13	74.5
Saybolt Viscosity	74	23	51	31.1
Demulsibility	49	42	7	85.7
Settlement / Storage Stability	46	34	12	73.9
Cement Mixing	32	26	6	81.2
Sieve	60	48	12	80.0

HOT MIX ASPHALTS

AASHTO TEST METHOD	NUMBER OF LABORATORIES	LABORATORIES IN CONFORMANCE	LABORATORIES OUT OF CONFORMANCE	PERCENTAGE IN CONFORMANCE
T30	295	104	191	35.3
T110	9	4	5	44.4
T164	222	47	175	21.2
T165	55	42	13	76.4
T166	328	203	125	61.9
T167	46	20	26	43.5
T170	56	23	33	41.1
T209	329	67	262	20.4
T245	293	44	249	15.0
T246	44	3	41	6.8
T247	37	9	28	24.3
T269	220	220	0	100.0
T275	81	61	20	75.3
T283	131	53	78	40.5
T287	53	35	18	66.0
TP4	141	37	104	26.2
T308	135	31	104	23.0

ASPHALT CEMENT

AASHTO T44 - Solubility of Bituminous Materials

FOOTNOTE	OCCURRENCES
The filter was not wet with a small amount of solvent and seated with light suction before the solution was decanted through it.	8
The bottom of the Gooch crucible was not rinsed after the solution had been decanted through it.	12
The mass of the Gooch crucible was not determined to the nearest 0.1 mg.	3
The oven was not maintained at 110±5°C.	2
The Gooch crucible was not cooled in a dessicator between the drying and weighing portion of the test.	1
The drying and weighing procedure was not repeated until the Gooch crucible and contents reached a constant mass.	9
An analytical balance was not presented.	1
The mass of the insoluble matter was not determined to the nearest 0.01% if < 1.0 g, or 0.1% if > 1.0 g.	3
The solvent presented for inspection was not technical grade, Type 1, trichloroethyloene or technical grade 1,1,1 trichloroethane.	4
The crucible presented did not meet the dimensional requirements of the test method.	1
The specific gravity was not calculated according to the method.	1
The container was not agitated until all of the sample was dissolved.	5
The sample was not allowed to cool before weighing.	1
Glass fiber filter pads were not presented.	1
A desiccator was not presented.	1
The outside of the container was not rinsed free of bituminous matter.	1

No. of Labs in Conformance: 59

AASHTO T48 - Flash and Fire Points by Cleveland Open Cup

FOOTNOTE	OCCURRENCES
The initial rate of temperature rise of the sample was not 14 to 17°C per minute.	59
The final rate of temperature rise of the sample was not 5 to 6°C per minute.	55
The test flame orifice did not move in a plane not more than 2.5 mm above the cup.	17
As the temperature on the thermometer reached each successive 2°C mark, the test flame was passed over the cup twice, once in one direction and once opposite.	10
The barometric pressure was not checked at the conclusion of the test to determine if it differed from 760 mm Hg.	9
An ASTM 11C/11F thermometer was not presented for inspection.	5
The testing apparatus was not located in a draft-free location.	1
A comparison bead for judging the size of the test flame was not mounted on the tester.	6
A test flame was not applied when the sample was 28°C below anticipated flash.	2
The direction the test flame was passed over the cup was not reversed at each interval.	9
The diameter of the test flame could not be maintained between 3.8 and 5.4 mm.	1
After the cup was filled, the air bubbles on the surface were not destroyed.	2
The top of the apparatus was not shielded from strong light.	1
The equipment presented did not include a heat-resistant board to cover the heating plate.	2
The formula specified by the method to correct for barometric pressure was not used.	1
The thermometer was not positioned midway between the center and the side of the test cup.	3
The test cup was not cleaned of all carbon deposits from previous tests.	3
The thermometer was not positioned so that the bottom of the thermometer bulb was ¼ in. from the bottom of the cup.	3
The bottom thickness of one of the test cups presented was not 2.8 to 3.6 mm.	2
It was understood that the performance of the apparatus had not been verified by testing the calibration fluid, when available, or a sample with a mutually agreed upon flash point.	1
The thermometer that was presented was not calibrated.	1
The diameter of the comparison bead was not 3.8 to 5.4 mm.	2

AASHTO T49 - Penetration of Bituminous Materials

FOOTNOTE	OCCURRENCES
One of more of the penetration needles presented for inspection were in unsatisfactory condition.	29
The method specifies that three penetration needles are required for testing asphalt with penetration values of greater than 200. Less than three needles were presented.	13
The transfer dish containing the sample was not returned to the water bath after each penetration.	12
A cover was not loosely placed on the container and its contents while the sample was cooled at room temperature.	10
It was understood that the thermometer presented for use in the water bath had not been calibrated.	9
The perforated shelf of the water bath was not at least 50 mm from the bottom of the bath.	8
The perforated shelf of the water bath was not at least 100 mm below the water surface.	6
A thermometer readable to 0.1°C (0.2°F) for use in the water bath was not presented.	3
The water bath was not maintained at 25.0±0.1°C (77.0±0.2°F).	7
The dial on the penetrometer was not accurate at \pm 0.1 mm.	2
For tests using the transfer dish with the penetration apparatus outside the bath, the method specifies that the sample shall be placed in the water bath with the transfer dish. The transfer dish was not placed in the water bath with the sample.	4
A 100 g weight was not included in the equipment presented for inspection.	3
The mass on the spindle on the penetrometer was not 47.50 ± 0.05 g.	1
The reported penetration was not the average of three penetrations.	2
The water bath presented did not contain a perforated shelf.	3
The needle was not released for 5.0 ± 0.1 seconds.	1
The thermometer was not immersed to the level of the shelf.	14
The needle was not cleaned with a solvent-wet cloth between penetrations.	1
The transfer dish used was not deep enough to fully immerse the sample.	1
The dimensions of the ferrule did not meet the dimensional tolerances specified in the method.	5
The mass of the sample was not 50.0 ± 0.5 g.	1
The transfer dish did not have a means to prevent the sample container from rocking.	2
The test specimen was not cooled between 15 and 30°C for 1 to 1½ hours.	1
The timer was not graduated in 0.1 second increments.	1
The water in the bath was not clean.	1

AASHTO T50 - Float Test for Bituminous Materials

FOOTNOTE	OCCURRENCES
The float and collar assemblies had not been calibrated for depth of immersion.	12
The bottom of the thermometer bulb was not immersed to a depth of 40 ± 2 mm below the water surface.	16
As ASTM 15C or 15F thermometer was not presented for inspection.	10
The specimen was not immersed in the 5°C water bath for 5 minutes before trimming.	2
The height of the bath container above the water level was not at least 40 mm.	6
One or more floats did not meet the dimensional tolerances of the test.	4
One or more collars did not meet the dimensional tolerances of the test.	5
The height of the rim above the lower side of the shoulder was not 27 ± 0.5 mm.	1
The collar and float were not immersed in the 5°C bath for 1 minute prior to the test.	2
The temperature of the bath was not maintained at \pm 0.5°C of the test temperature.	2
The specimen was not immersed in the 5°C water bath for 15 to 30 minutes after trimming.	2
The temperature of the cold water bath presented was not maintained at 5 ± 1 °C.	2
The specimen was not flush with the top of the collar after the excess material was cut off.	1
The depth of the bath was not at least 185 mm.	2
After the sample was cooled to room temperature, the collar was removed from the plate before it was placed in the water bath at 5°C.	1
The method specifies that the assembly should not spin. The auto-stirrer caused the assembly to spin.	2

No. of Labs in Conformance: 17

AASHTO T51 – Ductility of Bituminous Materials

FOOTNOTE	OCCURRENCES
The temperature of the water bath presented was not maintained at ± 0.1 °C (± 1.8 °F).	9
The specific gravity of the water in the testing machine was not adjusted to prevent contact of the bituminous material with the bottom of the bath.	6
The width at the minimum cross-section of one or more ductility molds was not 10.0 ± 0.1 mm.	15
It was understood that the thermometer presented for inspection had not been calibrated.	7
The sample was not placed in the water bath for 30 minutes prior to trimming the excess material.	2
The thermometer presented was not an ASTM 63C or 63F.	7
The tank of the ductility testing machine was used as a water bath for maintaining the specimens at the specified test temperature. The tank did not meet one or more of the temperature, depth, or perforated shelf requirements specified by the method.	2
The test method specifies that the average of three normal tests shall be recorded as the ductility of the sample. Only one of two ductility tests were performed.	3
The mold was not filled sufficiently more than level full to allow the mold to be just level full after cutting off the excess material.	2
The ductility machine did not maintain the specified speed within 5 % (5.00 \pm 0.25 cm/min).	1
The sample was not stirred prior to pouring.	2
The interior surfaces of the end pieces of the molds were treated with release agent. This is not specified in the test method.	1
The bath was not cleaned of any oil or slime.	1
The samples were not cooled at room temperature for 30 - 40 minutes after pouring.	2
The thermometer presented was not calibrated.	1
A thermometer was not presented.	1
The specimens were not pulled until they ruptured.	1
After pouring, the sample was not cooled at room temperature for 30 to 40 minutes.	1

No. of Labs in Conformance: 46

AASHTO T53 – Softening Point of Asphalt

FOOTNOTE	OCCURRENCES
The rate of rise of the bath temperature was not maintained at 5.0 ± 0.5 °C (9.0 ± 1.0 °F) per minute.	18
The brass rings were not heated to the approximate pouring temperature prior to pouring the samples.	6
The bath temperature was not maintained at 5 ± 1 °C (41 ± 2 °F) for 15 minutes for the inspection.	6
The lower surface of the bottom plate of the ring holder was not 16 ± 3 mm from the bottom of the bath.	6
The temperature could not be read three minutes after the start of the test because the lower end of the thermometer was concealed by a cork.	6
The mass of one or more of the steel balls presented for inspection was not 3.50 ± 0.05 g.	1
An appropriate ASTM 16C/16F or 15C/15F or 113C/113F thermometer was not presented for inspection.	7
It was understood that the bath liquid was not freshly boiled distilled water, ethylene glycol, or USP Glycerin.	4
The steel balls were not conditioned in the bottom of the bath for 15 minutes.	4
The bath was not filled with liquid to a depth of 105 ± 3 mm.	4
The ring holder presented for inspection was not designed to support two rings.	2
The thermometer was not suspended in the assembly so that the bottom of the bulb was level with the bottom of the rings.	3
The starting point for the glycerin bath was not $30 \pm 1^{\circ}$ C.	1
The diameter of the beaker was not at least 85 mm.	1
The water used was not freshly boiled, distilled water.	1
The softening point was not reported to the nearest 0.5°F.	2
The ball centering guides were not made of brass.	1
The bottom of the shouldered rings in the ring holder were not 1 in. above the upper surface of the bottom plate.	1
The results obtained in the ethylene glycol bath were not corrected to water or glycerin.	1
The pouring plate was not coated with a release agent.	1
The specimens were not allowed to cool for at least 30 minutes before trimming.	1

No. of Labs in Conformance: 39

AASHTO T55- Water in Petroleum Products and Bituminous Materials by Distillation

FOOTNOTE	OCCURRENCES
The method specifies that the ring burner shall be lowered as the distillation proceeds when using a metal still. The ring burner was not lowered during the distillation.	1
A loose cotton plug was not inserted in the top condenser to prevent condensation of atmospheric moisture.	1

No. of Labs in Conformance: 26

AASHTO T78 – Distillation of Cut-Back Asphaltic [Bituminous] Products

FOOTNOTE	OCCURRENCES
The drip rate from the tip of the adapter, below 260°C (500°F), was not 50 to 70 drops per minute.	27
The test method specifies that the 8-oz. residue container shall be placed on its cover. The residue container was not placed on its cover.	1
The first drop of the distillate did not fall from the end of the flask side-arm 5 - 15 minutes after heat was applied.	1
The total time from cutting off the flame to starting the pouring of the residue exceeded 15 seconds.	11
The drip rate from the tip of the adapter, between 260 and 316°C (500 to 600°F), was not 20 to 70 drops per minute.	11
The total length of the condenser was not 450 ± 10 mm.	1
The distance from the neck of the flask to the outlet of the adapter was not 650 ± 50 mm.	1
An ASTM 8C or 8F thermometer was not presented for inspection.	1
The specific gravity of was not used to determine the amount of material needed for the test.	2
The temperature rise from 316 to 360°C exceeded 10 minutes.	6
The heat was cut off before the temperature reached 310°C.	1
The outlet adapter was not angled 45 degrees.	1
The shield cover was not used.	2
The volume of distillate was not recorded to the nearest 0.5-mL.	2
The end of the outlet adapter was not cut or ground.	2
The receiving cylinder was not covered.	1
The weight of 200 mL of sample was not calculated.	1
The distillation could not be increased above 505°F.	1
The receiving cylinder was not graduated to 0.1 mL.	2
The barometric pressure temperature correction was not applied.	1
The sample was not stirred to promote a homogeneity.	1

AASHTO T79 - Flash Point with Tag Open-Cup Apparatus

FOOTNOTE	OCCURRENCES
The rate of temperature rise of the sample was not 1.0 ± 0.3 °C $(2.0 \pm 0.5$ °F) per minute.	16
The sample level in the test cup was not adjusted at 10 to 15°C below the expected flash point.	2
The center of the test flame orifice was not 3.2 mm above the test cup.	2
The test flame was passed over the cup twice for each successive 1°C (2°F) mark.	2
A filling level gage was not presented.	4
The procedure was not demonstrated.	2
An ASTM 9C or 9F thermometer was not presented.	1
The ignition taper was not passed across the sample at successive 1°C (2°F) intervals.	1
The filling level gauge was not of the dimensions specified in the test method.	1

AASHTO T179 – Effect of Heat and Air on Asphalt Materials [Thin-Film Oven Test]

FOOTNOTE	OCCURRENCES
The temperature of the oven was not maintained at $163 \pm 1^{\circ}\text{C}$ ($325 \pm 2^{\circ}\text{F}$) throughout the test.	10
The temperature of the oven did not return to 162°C within 15 minutes after the samples were introduced.	8
The bottom of the thermometer bulb was not 6.4 mm above the top of the shelf.	5
After the change in mass determination, the samples were not placed on rigid heat-resistant boards before they were returned to the oven.	6
One or more of the sample pans presented for inspection were in unsatisfactory condition.	1
The procedure for demonstrating the percent change in mass was not demonstrated.	2
The change in mass samples were not weighed to the nearest 0.001 g.	1
The oven thermometer was not mounted at a point equidistant from the center and the outer edge of the rotating shelf.	1
The depths of the sample containers presented were not 9.5 mm.	
When demonstrating the procedure for percent loss, the samoles were not weighed to the nearest 0.001 g.	1
For pouring the residue, the samples were not placed in the thin-film oven at 163° C (325° F) for 15 ± 2 minutes.	1
The thermometer presented was not an ASTM 13C.	1
The shelf did not rotate at a rate of 5.5 ± 1.0 r/min.	1
2 or more sample pans were not used.	1
The sample was not cooled to room temperature before it was placed in the oven.	1

No. of Labs in Conformance: 31

AASHTO T201 - Kinematic Viscosity of Asphalts

FOOTNOTE	OCCURRENCES
The temperature of the viscometer bath was not maintained at 135 ± 0.06 °C (275.00 ± 0.1 °F).	16
No provision was made for filtering and drying the air used to dry the viscometer after it was cleaned.	8
While preparing the sample for pouring, the sample was not heated to 135.00 ± 5.5 °C (275 ± 10 °F).	8
The ASTM 110F thermometer presented for inspection was not immersed to the top of the mercury column.	17
It was understood that the thermometer presented for use with the viscosity bath had not been calibrated.	5
The top of the capillary of the viscometer tube was not located at least 20 mm below the level of the bath liquid.	12
The viscometer was not preheated to a temperature of 135.00 ± 5.5 °C (275 ± 10 °F).	1
The viscometers are not periodically cleaned with chromic acid.	3
An ASTM 47C/47F or 110C/110F thermometer was not presented.	2
The equipment presented for inspection did not include residue-free acetone or chromic acid for the periodic cleaning of the viscosity tubes.	10
The sample was not stirred during preparation.	1
The viscometer was not filled until the leading edge was within 0.5 mm of the fill mark on the siphon tube.	3
The thermometer presented for inspection was not readable to 0.05°C (0.1°F).	4
The temperature of the viscosity bath was not maintianed at 60.00 ± 0.01 °C (140.00 ± 0.02 °F).	1
The thermometer was not accurate after a correction of 0.02°C (0.04°F) was made.	1
The first flow time which exceeded 60 seconds between a pair of timing marks was not reported.	1
The flow was not recorded to 0.1 seconds.	1
The cut-back samples were not kept in a sealed container before the test was performed.	1
The flow of the asphalt was not started as is prescribed in the method.	2
The viscometers were not the ones that were described in the method.	1
The temperature of the cut-back asphalt was not 145 ± 5 °F.	1
The calibration constant of the viscometer was not known.	1

AASHTO T202 - Viscosity of Asphalts by Vacuum Capillary Viscometer

FOOTNOTE	OCCURRENCES
The temperature of the viscometer bath was not maintained at 60.00 ± 0.03 °C (140 ± 0.05 °F).	15
No provision was made for filtering and drying the air used to dry the viscometer after it was cleaned.	9
The vacuum system did not maintain a vacuum of 300 ± 0.5 mm Hg.	14
While preparing the sample for pouring, the sample was not heated to 135 ± 5.5 °C (275 ± 10 °F).	12
The ASTM 47F thermometer presented for inspection was not immersed to the top of the mercury column.	17
It was understood that the thermometer presented for use with the viscosity bath had not been calibrated.	4
The viscometer was not preheated to a temperature of 135 ± 5.5 °C (275 ± 10 °F).	4
After the viscometer was charged, it was not placed in an oven or bath maintained at 135 ± 5.5 °C (275 \pm 10°F) for a period of 10 ± 2 minutes.	10
The first flow time which exceeded 60 seconds between a pair of timing marks was not reported.	6
An ASTM 47C or 47F thermometer readable to 0.05°C (0.1°F) was not presented for inspection.	6
The open-end mercury manometer presented for inspection could not be set to read zero when no vacuum was applied.	5
The viscometers are not periodically cleaned with chromic acid.	4
The equipment presented for inspection did not include residue-free acetone or chromic acid for the periodic cleaning of the viscosity tubes.	12
The test report did not include the test temperature, the vacuum, the tube size, and the bulb used to determine the viscosity.	5
The stopwatch presented for inspection was not graduated in divisions 0.1 s.	1
The viscometer was not filled within 2-mm of the fill line	3
It was understood that the viscometers are not cleaned with solvents.	1
The vacuum system did not hold a vacuum when the system was evacuated and closed.	1
The first flow time which exceeded 60 seconds between a pair of timing marks was not reported.	2
The sample was not stirred during the preparation.	1
The charged viscometer was not equilibrating in the test bath for 30 ± 5 minutes.	1

AASHTO T228 – Specific Gravity of Semi-Solid Bituminous Materials

FOOTNOTE	OCCURRENCES
The top of the pycnometer was not immersed at least 40 mm below the surface of the water in the beaker.	19
The bottom edge of one or more stoppers were chipped.	11
The pycnometer was not warmed before it was filled with the sample.	6
The diameter of the stopper holes for one or more of the pycnometers was not 1.0 to 2.0 mm.	7
The bottom of the beaker was not immersed in the bath to a depth of at least 100 mm below the surface of the water.	14
The freshly boiled, distilled water of the pycnometer was not at a temperature of 25.0 ± 0.1 °C (77.0 ± 0.2°F).	1
After the pycnometer was filled, material touched the sides of the pycnometer above the final sample level.	1
A calibrated thermometer readable to 0.1°C (0.2°F) was not presented.	7
The pycnometer was not filled freshly boiled, distilled water.	8
The air bubbles on the sample were not removed with a bunsen burner.	
The water bath presented for inspection was not maintained at 25.0 ± 0.1 °C (77.0 ± 0.2 °F).	5
An analytical balance conforming to the requirements of AASHTO M231, Class B, was not presented for inspection. The weighings were not made to the nearest 0.001 g.	2
The pycnometer (containing the asphalt) was not filled with freshly boiled distilled or deionized water and placed in a beaker containing freshly boiled distilled or deionized water.	1
The pycnometer was not cooled to an ambient temperature for at least 40 minutes.	1
The beaker was not clamped in place.	5
The edge of the hole on one of the stoppers presented was chipped.	3
A beaker was not used. The pycnometer was placed directly in the bath.	1
The capacity of the beaker presented was not at least 600 mL.	3
The top of the pycnometer was not smooth and plane.	1

No. of Labs in Conformance: 64

AASHTO T240 -Effect of Heat and Air on a Moving Film of Asphalt [RTFOT]

FOOTNOTE	OCCURRENCES
The temperature of the oven did not return to 163 ± 0.5 °C (325.0 ± 1 °F) within 10 minutes after the samples were introduced.	38
The temperature of the oven did not maintain 163 ± 0.5 °C (325.0 ± 1 °F) throughout the test.	20
The dip in the open end of one or more of the sample bottles was not 0.03 to 0.09 inches.	20
The samples for determining the change in mass were not cooled on a cooling rack after they were removed from the oven.	4
The samples for determining the change in mass were not cooled in a desiccator after they were removed from the oven.	21
The distance between the air outlet orifice and the opening of the containers was not 1/4 inch.	20
The height of one or more of the sample bottles was not 5.50 ± 0.06 in.	4
The thermometer was not located 2 inches (51 mm) from the right side of the oven at a midpoint in the depth of the oven so that the bulb of the thermometer was within 1 inch (25 mm) of an imaginary line level with the carriage axis.	7
The containers were not arranged so the carriage was balanced.	8
The procedure for determining the change in mass was not demonstrated.	5
The opening of one or more sample containers was not 1.19 to 1.31 inches.	1
The air jet was not directed along the center of the sample container.	5
Prior to starting the test, the unused spaces in the carriage were not filled with empty bottles.	2
An ASTM 13C thermometer was not presented for inspection.	6
The vertical carriage did not rotate at a speed of 15 ± 0.2 rev / min.	3
The oven was not preheated at least 16 hours.	
The mass of each container was not determined to the nearest 0.001 g (for change in mass).	8
The O.D. of one or more sample bottles was not 2.520 ± 0.047 inches.	
The samples were not removed from the oven 85 minutes after the test was started.	8
The equipment presented did not include a cooling rack.	11
The equipment presented did not include a desiccator.	
The squirrel cage fan in the oven did not have an outside diameter of 5 ¼ inches and a width of 2 f inches.	8
The active sensing element was not located in the position described in the test method.	30
The samples were not removed from the bottles with circumferential scraping.	9
While removing the bottles, the door was not closed with the heat, air, and carriage on.	5
The flow meter was not calibrated.	3
The air flow was restricted by metal plates on the oven floor.	4

The samples were not cooled before placing them in the oven for testing.	2
The change in mass samples were not removed before the sample bottles.	1
The containers were rotated before laying them down horizontally in the cooling rack.	3
After pouring, the containers were not placed horizontally on the cooling rack for 60 - 180 minutes.	4
The carriage did not hold 8 containers in the horizontal position.	1
The change-in-mass samples were not cooled on a cooling rack after they were removed from the oven.	4
The last container was not removed within 5 minutes of the first one.	1
The sample was not heated in an oven with a loosely fitted cover at a temperature not to exceed 302°F.	1
The bottles were frosted.	1
The cooling rack was not made of aluminum or stainless steel.	2
The fan was not operational at the time of the assessment.	1
The desiccator was not charged with effective desiccant.	1
The residue was not emptied into a container over 75% full.	1
The oven was not equipped with a 13C thermometer.	1
The sample was not stirred during heating.	2
The residue was not poured into one container.	1

AASHTO T295 - Specific Gravity of Liquid Asphalts by Hydrometer Method

FOOTNOTE	OCCURRENCES
It was understood that the thermometer presented for inspection had not been calibrated.	1
An ASTM 12C or 12F thermometer, readable to 0.1°C (0.25°F), was not presented.	2
The hydrometer presented for inspection was not one of the ASTM hydrometers specified in Table 1.	2
The ASTM 12F total immersion thermometer was not immersed to the top of the mercury column.	1
The temperature of the sample was not allowed to come to equilibrium with the bath temperature.	1
The temperature of the sample was not determined to 0.5°F (0.3°C).	2
The temperature was not checked to see if it was within 1°F (0.5°C) before and after readings.	3
The depth of the water bath was not at the level of the sample in the cylinder.	1
The hydrometer sunk to the bottom of the cylinder. The specific gravity could not be determined.	1
The bath was not capable of maintaining temperature within 1.0°F of test temperature.	1
The hydrometer was not preheated.	1

AASHTO TP48 - Viscosity Determination Using a Rotational Viscometer

FOOTNOTE	OCCURRENCES
The test report did not include the temperature, spindle number and speed, and torque in percent.	31
The temperature controller had not been calibrated.	17
The spindle was not preheated before it was lowered into the sample.	4
Three readings were not determined 60 seconds apart during the test.	5
The viscometer speed was not originally set at 20 revolutions/minute.	3
The sample was not maintained at the test temperature for 10 minutes before the test without rotation.	14
The temperature controller did not maintain the specimen temperature within 0.1°C of the test temperature.	29
It was understood that the accuracy of the rotary transducer had not been checked using a reference fluid.	25
The temperature was not reported to the nearest 0.1°C.	13
The viscosity was not reported as the average of three readings.	2
The spindle, sample holder, and sample chamber were not preheated.	5
The test method could not be performed due to equipment failure.	1
The rotational viscometer was not leveled prior to the test.	1
The average viscosity was not reported in Pa*s.	1
Torque was out of range for the selected spindle.	1
The sample was not stirred before adding it to the chamber.	1
The temperature measuring device was not readable to 0.1°C.	1

AASHTO PP1 - Accelerated Aging Using a Pressure Aging Vessel (PAV)

FOOTNOTE	OCCURRENCES
The equipment presented did not include a vacuum degassing oven.	10
The pressure gauge and RTD have not been calibrated at least every 6 months.	59
The temperature in the pressure vessel exceeded the test temperature by more than 0.5°C for more than 10 minutes during the test.	8
After the pans were removed from the oven, the residue was not poured into a single container.	2
A temperature recording device sensitive to 0.1°C was not presented.	9
The air pressure was not reduced over a 9 ± 1 minute interval.	30
After the test was complete, the material was transferred to another container before all the air bubbles had been removed.	2
It was not known whether the temperature inside the PAV was within 20°C of the aging temperature when the PAV was pressurized.	1
The timing of the test was not started when the vessel was pressurized (2.1 ± 0.1 MPa).	2
After PAV-aging, the samples were not placed in the 163° C oven for 15 ± 1 minute.	5
The pressure gauge was not capable of measuring pressure to within 1%.	5
The pan holder was not preheated in the chamber.	6
The temperature was out of range for more than 10 minutes during the test and was not declared invalid.	1
The PAV was not equipped with a temperature recording device.	4
The pressure inside the vacuum oven was not maintained at 15 ± 2.5 kPa (112 ± 8.8 mm Hg) absolute for 30 ± 1 minutes.	2
The pans that were presented were not made of steel. They were made of aluminum.	1
The PAV could not hold at least 10 pans.	1

AASHTO TP1 - Bending Beam Rheometer (BBR)

FOOTNOTE	OCCURRENCES
The sample supports were not as is described in the method.	58
It was not known whether the LVDT differed more than 5 . m (0.005mm) from known values.	50
Clear plastic sheeting, 0.12 to 0.15 mm thick, was not presented for use with aluminum molds.	17
The width of the performance beam presented was not 6.35 ± 0.02 mm and or the thickness was not 2.0 ± 0.5 mm.	10
The temperature transducer was not mounted at the midpoint of the specimen.	20
The verification of the temperature transducer was not performed.	5
The calibration procedures differ from what is specified in the method.	6
The test load was not maintained to \pm 10 mN for 240 seconds.	24
The LVDT did not have a range of at least 10 mm.	20
A glycerol-talc mixture was not used to coat the end pieces of the aluminum molds.	24
The performance of the system was not checked using 100 and 200 g masses.	59
A freezer or ice bath capable of maintaining -5 to 5°C was not presented.	8
The dimensions of the demolded specimens were not 6.35 ± 0.05 mm thick by 12.70 ± 0.05 mm wide by 127.0 ± 0.5 mm long.	8
The test loads were not reported to the nearest 0.1 mN.	16
The width of the compliance beam was not 12.7 ± 0.1 mm or the thickness was not 6.4 ± 0.1 mm or the length was not 127 ± 0.5 mm.	7
A petroleum-based grease was not used to hold the plastic strips to the inside of the molds.	8
The specimen was not cooled in a freezer for 5 to 10 minutes before demolding.	4
The load on the beam did not return to 35 ± 10 mN at the end of the test.	20
The thermometer presented had not been calibrated.	8
The preload on the beam was not 30 ± 5 mN.	7
During the verification of the load cell, it was not known if the measured values agreed within $\pm 2mN$ (0.2 g) of the known forces imposed by the standard masses.	46
The specimen was not cooled for 45 to 60 minutes at room temperature after it was poured.	3
During the verification of the load cell, the measured values did not agree within $\pm 2mN$ (0.2 g) of the known forces imposed by the standard masses.	19
The times were not reported to 0.1 seconds.	6
The rise time was more than 0.5 seconds.	3
The stiffness modulus of the performance beam was not known.	1

The report did not include time in the bath, load, minimum and maximum temperatures, and deflection at 0.0 and 0.5 seconds.	13
The initial seating load of 980 mN was not applied for 1 second.	2
During the temperature verification, the temperature differed by 0.1°C and a correction factor was not applied.	1
The 35 mN contact with the testing beam lasted more than 10 seconds before initiating the test.	1
The temperature of the bath was not maintained within 0.1°C during the test.	2
The temperature changed by more than 0.2°C of test temperature when the cold specimen was introduced.	1
The temperature transducer was not verified daily before conducting the test.	1
The measured values were not indicated by the software during the verifications.	2
The verification of the LVDT was not performed with a stepped-thickness gauge of known dimensions.	4
The test data was not reported as is described in the method.	1
The test bath was not cleaned of all particles.	3
During the verification of the temperature, the thermometer was not immersed close to the thermal detector.	1
It was not known if the load on the beam returned to 35 ± 10 mN after the seating load was applied.	3
The thermometer presented did not have 0.1°C subdivisions.	7
The length of the compliance beam was not 127.0 ± 0.5 mm.	2
The LVDT differed more than 5 . m (0.005mm) from known values.	15
The temperature at which the specimen was conditioned was not within 0.1°C of the test temperature.	1
The initial seating load was not 980 ± 50 mN.	3
The elastic modulus of the performance beam was not known.	3
The molds used to pour the sample into were not constructed of aluminum.	1
The calibration constants were not reported to 3 significant figures.	2
The difference between the calculated and known elastic modulus was not less than 10%.	1
The contact point of the load cell was not spherical.	1
The sample floated in the testing bath.	1
The temperature recording device was not calibrated with a calibrated thermometer with subdivisions of 0.1°C.	1
Prior to demolding, the samples were not cooled at 0 to -10°C.	1
The load did not return to the seating load after the test was run.	1

FOOTNOTE	OCCURRENCES
The test report did not include one of more of the following: (1) a description of the rheometer, including the model and number and type of environmental chamber, (2) the test plate diameter, (3) the size of the test gap, (4) the strain amplitude, (5) the torque, (6) the complex modulus for 10 measurements, and the phase angle for the measurement cycle.	77
The calibration had not been verified using a suitable reference fluid.	23
A 8 mm base plate was either not presented or in unsatisfactory condition.	7
The procedure for determining the linearity of asphalt binders was not performed.	40
It was understood that the load and strain transducers are not calibrated at least every 6 months.	2
The test temperature was not maintained within 0.1°C for at least 10 minutes before the test was started.	9
The temperature detector had not been calibrated.	10
When the test for PAV residue was performed, the environmental chamber was not brought to approximately 45°C so that the test plates would be preheated prior to the mounting of the test specimen.	30
The specimens were not conditioned at the test temperature for at least 10 minutes.	4
The shear stress and frequency were not calculated by the data acquisition system.	2
The procedure described in the method used to determine the linearity of the asphalt binder was not performed.	11
The diameter of one of the two metal upper test plates was not 8.00 ± 0.05 mm.	6
The diameter of the lower plate was not 8.00 ± 0.05 mm.	3
The specimen trimmer was not at least 4 mm wide.	1
The PAV-residue was not trimmed at the testing gap plus 50 microns.	5
The diameters of the test plates were not $25.00 \pm .05$ mm.	7
The strain value was outside of the range of values listed in table 2.	1
The gap for trimming was not the testing gap plus 50 microns.	2
One of the silicone rubber molds presented did not have a diameter approximately equal to the diameter of the upper test plate.	2
The surfaces of the test plates were in poor condition.	7
The top of the original binder sample was trimmed while it was in the mold.	1
The base plate did not have a raised portion that was 2 to 5 mm high.	4
The PAV-residue was not trimmed at the testing gap plus 50 microns. It was trimmed at the testing gap.	1
PAV and RTFO residue was not tested.	3
The zero gap was not re-established once the plates had been changed.	1
The 25-mm test plates were either not presented or in unsatisfactory condition.	3

The 8-mm and 25-mm plates were not aligned correctly.	1
When testing RTFO residue, the strain value was not within the 8 to 12 percent range specified in Table 2.	2
It was not known if the complex modulus was determined using 10 cycles of data.	1
The frequency was not reported during the linearity test.	1
G* at frequencies less than 6% could not be determined.	1
The specimen was not poured onto a removable test plate.	1
The specimen trimming tool was not preheated.	1
The sample was not stirred before pouring.	1
The stress level was not within range of Table 3.	1

EMULSIFIED ASPHALT

General Note: T59

FOOTNOTE	OCCURRENCES
The emulsion with a viscosity requirement of 50°C (122°F) was not conditioned to 122 ± 6 °F in a 140°F bath.	3

AASHTO T59 - Residue by Distillation

FOOTNOTE	OCCURRENCES
During the last fifteen minutes of the test, the temperature of the sample was not maintained at 260 ± 5 °C (500 ± 10 °F).	12
The total distillation was not completed 60 ± 15 minutes after the first application of heat.	6
The thermal correction factor of 1.5 was not added to the gross weight of the hot still assembly prior to calculating the percentage of residue.	1
The residue was not stirred before it was poured from the still for further testing.	3
The equipment presented for inspection did not include two ASTM 7F or 7C thermometers.	6
The ring burner was not lowered when the temperature could be read on the lower thermometer (approximately 215°C).	1
The temperature of the sample was not monitored with the lower temperature.	1
The mass of the still, determined prior to adding the sample, did not include the lid, clamp, and thermometers.	1
The distillation was discontinued due to foaming and bumping.	1
The mass of the sample was not 200.0 \pm 0.1 g.	1
The ring burner was not lowered when the lower thermometer read 420°F.	1

No. of Labs in Conformance: 42

T59 - Residue by Evaporation

FOOTNOTE	OCCURRENCES
The equipment presented for inspection did not include three 1000-mL glass or aluminum beakers.	1
The temperature of the oven was not maintained at $325 \pm 5^{\circ}F$ ($163 \pm 3^{\circ}C$).	3
The beakers containing the rods and samples were not placed in an oven at a temperature of $325 \pm 5^{\circ}F$ ($163 \pm 3^{\circ}C$) for 1 hour after the initial evaporation.	1
Glass rods were not presented. Metal rods were used.	2
The method specifies that 4 beakers be used. Only 2 beakers were used.	1
The percentage of residue by evaporation was not calculated	1
The diameters of the glass rods were not 0.25 inches.	1

T59 - Particle Charge

FOOTNOTE	OCCURRENCES
The emulsion was not heated to $50 \pm 3^{\circ}$ C ($122 \pm 5^{\circ}$ F) in a $71 \pm 3^{\circ}$ C ($160 \pm 5^{\circ}$ F) water bath before it was tested.	7
The thermometer presented was not an ASTM 19 C or 19 F thermometer.	4
A beaker with a capacity of 250 mL was not presented.	2
The steel plates presented were not 1 by 4 inches.	2
The electrodes are not cleaned according to the specified procedure.	2
The electrodes were not gently washed with a smooth, thin stream of distilled water before they were examined for deposits of asphalts.	2

No. of Labs in Conformance: 38

T59 - Saybolt Viscosity

FOOTNOTE	OCCURRENCES
One or more of the viscometers presented had a calibration factor greater than one percent and should not be used for referee testing.	23
The level of the liquid in the viscosity bath was not at least 6 mm above the overflow rim of the viscometer.	15
It was understood that the viscometer had not been calibrated in the past three years.	6
The cork had emulsion on it when it was withdrawn from the viscometer.	11
The sample was not preheated 51.4 ± 0.3 °C $(124.5 \pm 0.5$ °F) in a 71 ± 3 °C $(160 \pm 5$ °F) water bath.	1
The temperature of the viscometer bath was not maintained at 25 ± 0.1 °C (77 ± 0.2 °F).	6
A small portion of the sample was not allowed to flow through the outlet tube to waste before filling the viscometer.	5
The method specifies that, after the viscometer has been filled, the sample shall not be disturbed . A portion of the sample in the gallery was cleared before testing.	6
The sample was not poured through an 850-μm (No. 20) sieve.	2
The sample was not poured into a 400 mL beaker.	1
An ASTM 19C / 19F or 17C / 17 F thermometer was not presented for inspection.	2
The temperature of the viscometer bath was not maintained at 50.00 ± 0.05 °C (122.0 ± 0.1 °F).	3
The timer presented was not graduated in 0.1 second intervals.	
The cork was pulled from the viscometer in a manner which impeded the initial flow of material.	2
It was understood that the viscosity tube had not been calibrated.	1
The sample was not maintained at 50.00 ± 0.05 °C (122.0 ± 0.1 °F) for one minute before proceeding with the test.	2
A correction factor was not available for the viscometer presented for inspection.	1
A 100 to 110 mL sample was not poured into a 4 oz. bottle and placed into the 25°C (77°F) water bath for 30 minutes.	1
The emulsion was not heated in it's original container to $50 \pm 3^{\circ}$ C ($122 \pm 5^{\circ}$ F) in a $71 \pm 3^{\circ}$ C ($160 \pm 5^{\circ}$ F) water bath.	1
The method specifies that the excess emulsion shall be removed from the gallery until there is no sample above the overflow rim of the viscometer. It was not.	2
The receiving flask was not placed beneath the viscometer so that the stream of emulsion would strike the neck of the flask.	3
The sample was not strained through a No. 20 sieve.	2
The viscometer was not filled above the overflow rim and then the gallery cleared.	1

The reported viscosity was not the product of the efflux time and the correction factor of the viscometer.	1
The sample was not mixed by slowly inverting the 4 oz. bottle several times.	1
The viscometer bath was not equipped with a stirrer.	1
The timer was not started at the instant the cork was pulled.	1

T59 - Demulsibility

FOOTNOTE	OCCURRENCES
The emulsion sample and reagent were not brought to 25 ± 0.5 °C (77.0 ± 1.0 °F).	3
The equipment presented for inspection did not include a 50-mL glass buret graduated in 0.1-mL intervals.	1
The kneading procedure was not continued for an additional 2 minutes after all reagent was added.	1
The reagent was not added over a 2 minute period.	2
The demulsibility was not calculated using the % of residue by distillation.	1
The water used was not distilled.	2
The amount of solution added was more than 35 mL.	1

T59 - Settlement / Storage Stability

FOOTNOTE	OCCURRENCES
There were not two 500-mL glass cylinders.	2
The 500 mL glass cylinders did not have 5 mL graduations.	2
After the portion of the sample was removed, approximately 390 mL was not removed.	1
The equipment presented for inspection did not include a siphon or a 60 mL pipet.	3
The sample was not removed without disturbing the remaining emulsion.	1
The diameters of the glass rods were not 0.25 inches.	1
Two cylinders were not used. Only one was used.	1
The mass of one of the samples was not 50.0 ± 0.1 g.	1
The oven was not maintained at 163 ± 3 °C.	1

T59 - Cement Mixing

FOOTNOTE	OCCURRENCES
The sieve was not rinsed by pouring water from a height of 6 inches.	2
A 100 mL sample of diluted emulsion was not added to the cement.	1
Repeated washings of distilled water were not used to completely remove the material from the mixing bowl.	1
The water used was not distilled	1
The sample was not stirred for 1 minute after 100-mL of diluted emulsion had been added to the cement.	1
The sample was not stirred for 3 minutes after the addition of 150 mL of distilled water.	1
A No. 14 sieve was not presented.	1

T59 - Sieve Test

FOOTNOTE	OCCURRENCES
The sample container and residue were not washed with a 2 percent sodium oleate solution.	2
The pan, sieve, and residue were not dried in an oven at 220°F.	1
The pan and sieve were not dried in a dessicator after they were dried.	3
The sieve was not wet with distilled water prior to the decantation of the sample.	3
The sample container was not washed with distilled water after the sample was poured through the sieve.	4
The desiccator was not charged with effective desiccant.	1
The equipment presented did not include a desiccator.	1
The mass of the sample was not 1000 g.	1

HOT MIX ASPHALT

AASHTO T30 - Mechanical Analysis of Extracted Aggregate

FOOTNOTE	OCCURRENCES
The amount of mineral matter in the extract from the extraction was not determined and included in the calculations.	67
The procedure used to determine the percentage passing the 75-µm (No. 200) sieve differed from the procedure specified in the method.	74
The mass of aggregate retained on one or more sieve exceeded the maximum amounts allowed by the method.	61
A 2.00 or 1.18-mm sieve was not presented for decanting wash water over the 75-μm (No. 200) sieve.	48
Care was not taken to avoid decantation of course particles and contact with sieves.	11
A wetting agent was not used during the washing portion.	41
The temperature of the oven was not maintained at 110 ± 5 °C (230 ± 9 °F).	20
Care was not taken to avoid possible loss of material.	18
The washing portion of the test method was not performed.	13
It was not known if the temperature at which the washed aggregate was dried was $110 \pm 5^{\circ}$ C (230 ± 9°F).	2
The washing procedure demonstrated was not the procedure specified in the method.	4
The washed aggregate was not dried at 110 ± 5 °C (230 ± 9 °F).	10
The entire sample of the extracted aggregate was not tested.	1
The sample was not weighed after it was washed and prior to dry sieving.	11
The loss on dry sieving exceeded 0.2 percent.	6
After the aggregate was washed, it was transferred to a No. 10 sieve and rinsed. This step is not specified in the method.	3
The total mass of the sample did not include the mass lost during washing and the mass retained on the filter paper.	3
The mass of the test specimen did not conform to the minimum requirements for nominal maximum aggregate.	1
The sample was not agitated enough to separate the finer particles form course particles.	1

No. of Labs in Conformance: 104

AASHTO T110 - Moisture Determination

FOOTNOTE	OCCURRENCES
The drip rate was not maintained at 85 -95 drops per minute.	2
Water and solvent did not begin to reflux in 5 -10 minutes after the heat was applied.	3
A loose cotton plug was not inserted in the top of the condenser to prevent condensation of atmospheric moisture inside the condenser.	1
The solvent was not one that was specified in the test method.	1
The length of the condenser jacket was not at least 400 mm.	1

No. of Labs in Conformance: 4

AASHTO T164 - Quantitative Extraction of Bitumen from Bituminous Paving Mixtures

FOOTNOTE	OCCURRENCES
The amount of mineral matter in the extract was not determined and no equipment for this purpose was presented.	74
The solvent presented was not one of the reagents specified in Section 6.	19
The filter ring was not dried to a constant mass at $110 \pm 5^{\circ}$ C ($230 \pm 9^{\circ}$ F) prior to testing.	35
The clean aggregate was not dried using the vacuum pump.	23
The moisture content of the mixture was not determined on a representative sample according to the distillation procedure described in T110 (ASTM D1461).	15
If recovery of bitumen is not required, the specimen may be dried at 149-163°C for 2 to 2½ hours prior to the extraction instead of determining the moisture content. The specimen was not dried at 149-163°C prior to the extraction.	35
The amount of mineral matter in the extract was not determined to the nearest 0.001g.	10
The ignition dish was not conditioned in the furnace.	7
The extracted aggregate and filter ring was not dried to a constant mass in an oven or hot plate at 110 \pm 5°C (230 \pm 9°F).	12
It was not known if the 1,1,1-trichloroethane presented was technical grade conforming to Federal Specification OT-620.	11
Ammonium carbonate was not presented for the inspection.	13
The mass of the test sample was less than specified based on the nominal maximum aggregate size.	15
An analytical balance was not presented.	9
The temperature of the oven was not maintained at $110 \pm 5^{\circ}$ C ($230 \pm 9^{\circ}$ F).	15
The method specifies that when sieves are used, the solution shall be decanted through nested 12 inch diameter 1.18-mm (No. 16) and 75 m (No. 200) sieves. A 1.18-mm sieve was not used.	13
The centrifuge extractor was not installed in an effective surface exhaust system to provide ventilation.	13
The test sample was not the result of splitting or quartering a larger sample.	12
The extracted aggregate was washed with water after the last wash with solvent. This procedure is not specified in the method.	3
A suitable high-speed centrifuge of the continuous-flow type was not presented for the mineral matter determination. A batch centrifuge was used.	5
The sample was not cooled to a temperature less than 130°F (54°C) before the extraction solvent was added.	1
The centrifuge extractor did not have controlled variable speeds less than 3600 rpm.	2
The method specifies that at least three 200 mL additions shall be used in the extraction. Less than three solvent additions were made.	1

The filter sacks presented did not have elastic hems.	1
The level of solvent in the glass cylinder was above the tip of the lower frame.	2
The equipment presented did not include a muffle furnace or a gas burner capable of reaching 500 to 600°C for the ashing method.	3
The equipment presented for the mineral matter determination did not include ammonium carbonate and an analytical balance. (Ashing Method)	4
The test specimen was not dried prior to the extraction.	1
The residue was not sufficiently ashed in the muffle furnace. (Ashing Method)	2
The cover of the centrifuge extractor could not be clamped tightly of the bowl.	1
The temperature at which the mixture was heated, until sufficiently soft to separate, was not 110 ± 5 °C.	3
5 milliliters of reagent grade ammonium carbonate was not added per gram of ash.	7
The mineral matter was not dried to 110 ± 5 °C.	5
There was no insulating pad under the reflux jars.	3
The rate of the centrifuge extractor feed was not 100 - 150 mL / minute.	2
A watch glass was not used.	3
The terpene solvent was not rinsed off with water.	2
The filter ring was not brushed off.	2
The solvent was not poured over the test sample and allowed to dissolve the asphalt for a few minutes before starting the extractor.	1
The centrifuge extractor leaked.	2
The diameter of the filter paper was not 330 mm.	2
The equipment presented did not include 1 or 2-mL graduated cylinders for measuring the total volume of the extractant.	1
The filter sac and extracted aggregate were not dried on a steam bath prior to being placed in an oven.	1
The total volume of extract was determined before the beakers were rinsed with additional solvent.	3
The vacuum hood was out of order at the time of the assessment.	1
It was not known if the centrifuge extractor could produce speeds up to 3600 r/min.	1
The mass of the mineral matter in the test cup was not determined to 0.01 g.	2
It was not known if the oven was 110 ± 5 °C.	1
The volumetric flask presented for mineral matter was not large enough to hold all of the extract.	1
The volumetric flask was not filled with solvent which was at the same temperature as the extract.	1
The thermometer presented for the volumetric method was not readable to 0.1°C (0.2°F).	1

The apparatus for determining the moisture content by T110 was not presented.	2
Filtering aid was not used.	1
The capacity of the ignition dish was not at least 125 mL.	1
500 mL of solvent was not added to the filtering aid.	1
The feed rate of the extract was not known.	1
The outside of the centrifuge cup was not rinsed with solvent prior to drying it in the oven.	2
The color of the extract after the last addition of solvent was added was darker than a straw color.	1
The entire frame and assembly was not dried at the conclusion of the extraction. The filters and aggregate were removed from the frames and then dried.	1
The total mass of the loaded frame was not determined.	1
The sample did not contain all of the aggregate after the extraction.	1
The filtering aid was not decanted over the watch glass.	3

AASHTO T165 - Effect of Water on Cohesion Bituminous Mixtures

FOOTNOTE	OCCURRENCES
The temperature of the water bath was not maintained at 25 ± 1 °C (77.0 ± 1.8 °F).	2
Three flat transfer plates made of glass or other nonreactive material were not presented.	2
The temperature of the air bath was not maintained at $25 \pm 1^{\circ}$ C ($77.0 \pm 1.8^{\circ}$ F).	3
The equipment presented did not include an air bath.	6
The water in the bath had not been distilled or treated to eliminate electrolytes.	3
A transfer plate was not kept under each specimen during the immersion period.	1
The water bath was not emptied, cleaned, and refilled with distilled water for each set of tests.	1
A 77°F water bath was not used or presented.	1

AASHTO T166 - Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens

FOOTNOTE	OCCURRENCES
The specimen was not blotted with a damp towel. The towel was dry.	32
The temperature of the water in which the immersed mass of the sample was determined was not 25 ± 1 °C (77 ± 2°F).	22
The bath for immersing the specimen was not equipped with an overflow outlet.	35
The specimen holder was not suspended by a wire of the smallest practical size.	13
The specimen holder was not completely submerged in water.	42
The specimens were not immersed for 3 to 5 minutes before determining the specimen mass.	12
The specimen exposed to moisture was not dried at $52 \pm 3^{\circ}$ C ($125 \pm 5^{\circ}$ C) overnight and then at successive 2 hour intervals until constant mass was attained.	4
The sample was not cooled to $25 \pm 5^{\circ}$ C ($77 \pm 9^{\circ}$ F) before the dry mass was recorded.	2
The balance presented did not have the sensitivity of 0.1 g.	1
The water was not filled to the overflow outlet.	20
The bulk specific gravity was not calculated according to the method.	3
The room temperature was not 25 ± 5 °C.	2
The SSD was not determined.	2
The temperature of the bath was not checked.	2
The percent absorbed water was not determined.	1
The sample absorbed more than 2% of water.	1
The suspension apparatus and holder were not suspended from the center of the scale pan of the balance.	1

No. of Labs in Conformance: 203

AASHTO T167 - Compressive Strength of Bituminous Mixtures

FOOTNOTE	OCCURRENCES
The height of the bottom plunger presented was not 50 ± 4 mm ($2 \pm C$ in.).	6
The temperature of the air bath was not maintained at $25 \pm 1^{\circ}$ C ($77.0 \pm 1.8^{\circ}$ F).	2
The molds and plungers were not wiped with a clean cloth containing a few drops of oil.	2
The differences between the inside diameter of the molds and the diameter of the plungers was greater than 0.050 inches.	3
The equipment presented did not include an air bath.	4
The mixing and compacting temperatures were not based on a temperature-viscosity curve for the bitumen.	4
The inside diameters of one or more of the molds was not 4.000 to 4.005 inches (101.6 mm or greater).	9
The bearing faces of both the upper and lower bearing blocks were not plane within 0.025 mm.	3
The specimens were not tested in axial compression at a rate of vertical deformation of 0.050 in./minute of height.	1
The specimen was not oven-cured for 24 hrs. at a temperature of 140°C after removing from the mold.	1
The spatula used to spade the mixture in the mold was not preheated.	2
The height of the specimen was not 101.6 ± 2.5 mm high.	2
The sample was not rounded to a cone shape prior to compaction.	1
The mold supports were not 1 in. high.	2
Mold supports were not presented.	2
The hot plate was not accompanied by sand bath or hot plate to eliminate localized heating.	1
The sample was not spaded with a heated spatula 15 times around the inside perimeter of the mold and 10 times randomly in the interior.	2
The equipment presented did not include a bottom plunger.	1
The temperature of the mixture immediately prior to compaction was not checked to see if it was within the limits of the recommended compaction temperature.	1
The specimen molds, plungers, and sample supports did not meet the dimensional requirements specified in the test method.	2
The ejection device for removing the specimen from the mold did not provide a smooth rate of travel for the ejection head.	2
The support bars were not in place when the initial 150 psi load was applied.	1
The support bars were not removed prior to applying the 3000 psi molding load.	1
The plungers were not preheated.	1

The upper bearing block of the testing machine was not spherically seated.	1
The diameter of the face of the lower plate was not greater than that of the specimen.	1
The ends of the plungers were not smooth.	1
The sample was not obtained by splitting or quartering.	1

AASHTO T170 - Recovery of Asphalt From Solution by Abson Method

FOOTNOTE	OCCURRENCES
During the latter part of the distillation, the temperature was not maintained at 160 to 166°C (320 to 330°F).	15
The ash content of the recovered asphalt was not determined.	5
The solution presented was not reagent or technical grade trichloroethylene.	3
The distillation was not accomplished with one large flask.	3
The method specifies that the asphalt shall be extracted from the aggregate-asphalt mixture in accordance with Method A or Method E. Neither method was used.	1
The flow of carbon dioxide was not increased to 900 mL/min at 157 to 160°C.	1
The flow of carbon dioxide was stopped less than 15 minutes after increasing it to 900 mL/min.	1
An ASTM 7C or 7F thermometer was not presented.	3
The three-necked distillation flask and associated apparatus did not meet specification.	3
The carbon dioxide flow was not maintained at 900 mL/min. for 10 minutes.	1
A blank was not run on an asphalt of known properties for each new supply of technical grade methylene chloride or trichloroethylene.	1
The solution was not concentrated to approximately 200 mL by means of primary distillation.	2
The delivery tube presented for inspection was not a glass goose-neck shaped tube with an inside diameter of 10 mm.	1
The test was discontinued during the secondary distillation due to foaming and bumping.	1
The bulb of the aeration tube presented did not have six staggered holes approximately 1.5 mm in diameter.	3
The CO ₂ gas was not introduced at the beginning of the distillation to provide agitation and prevent foaming.	1
The goose-necked adapter was not made of glass. It was made of plastic.	1
A 250-mL wide-mouth distillation flask was not presented.	1
The outlet tube of the jacketed water condenser was broken.	1
The inlet aeration tube was not the one that was described in the test method.	1
The capacity of the centrifuge bottle was not 250 to 500 mL.	1
The primary distillation flask was not large enough to hold all of the solvent from the extraction.	1
The rate of the continuous centrifuge exceeded 150 mL/minute.	1
The ash content was not determined.	1

AASHTO T209 - Maximum Specific Gravity of Bituminous Paving Mixtures

FOOTNOTE	OCCURRENCES
A residual pressure manometer or vacuum gauge traceable to NIST was not connected directly to the vacuum vessel.	85
The residual pressure manometer presented was not connected at the end of the vacuum line using an appropriate tube and either a "T" connector on top of the vacuum vessel or by using a separate opening in the top of the vessel.	48
It was not known if the vacuum gauge connected directly to the vacuum vessel was traceable to NIST.	6
It was not known if the residual pressure inside the vacuum container was maintained at 3.7 ± 0.3 kPa (27.75 ± 2.25 mm Hg).	76
The equipment presented did not include fine wire mesh covering the hose opening.	111
The thermometer presented was not readable to 0.5°C (0.9°F).	39
The mass the flask and its contents was not determined 10 ± 1 minutes after the removal of entrapped air.	99
The vacuum system could not create a partial vacuum of 30 mm Hg or less absolute pressure.	34
The thermometer presented had not been calibrated.	40
The temperature of the flasks and its contents were not determined to $25 \pm 1^{\circ}\text{C}$ (77 ± 1.8°F).	27
The test sample was not based upon the nominal maximum aggregate size.	13
The sample was not weighed into the flask / bowl.	9
The test sample was not the result of splitting or quartering.	24
The balance did not have sufficient sensitivity to enable the specific gravity to be calculated to four significant figures.	1
The specimen holder was not suspended by a wire of the smallest practical size.	5
The sample was not subjected to a partial vacuum for a period of 15 ± 2 minutes.	11
The equipment presented did not include a manometer or vacuum gauge for measuring the vacuum applied at the source.	63
The entire test sample was not used to perform the test.	1
The procedure for determining the mass of the pycnometer filled with water differed from the procedure specified in the method.	4
The large size plastic pycnometer did not maintain a constant water level.	1
The residual pressure inside the vacuum container was not maintained at 3.7 ± 0.3 kPa (27.75 ± 2.25 mm Hg).	41
The sample was not dried to constant mass.	5
The vacuum was not released at 8 kPa/minute or less.	14
The equipment presented did not include 1000-mL water traps.	31
The equipment presented did not include a bleeder valve for regulation of pressure.	11

The manometer presented was damaged or had entrapped air.	6
The particles were not separated to ¼ in. or less.	1
The type C flask was not large enough (2000-mL). It was 1000-mL.	1
The flask used was not specified by the method - includes "a container within a container was used."	9
The thermometer was divided to 0.1°C (0.2°F).	1
When determining the mass of the flask, the flask was not completely filled.	2

AASHTO T245 - Resistance to Plastic Flow of Bituminous Mixtures using Marshall Apparatus

FOOTNOTE	OCCURRENCES
The procedure for preparing samples of bituminous mixtures in the laboratory was not demonstrated.	78
The inside diameter of one or more molds was not 4.000 ± 0.005 inches.	41
The hot plate presented for inspection was not equipped with a suitable shield, baffle plate, or sand bath.	64
The thermometer presented for use with the water bath was not readable to 0.2°C (0.4°F).	48
The mechanically-operated hammer presented for inspection had not been calibrated to give results comparable with a manually operated hammer.	64
The compaction pedestal was not attached to a solid concrete slab by four angle brackets.	55
After mixing, the sample was returned to the oven until compaction temperature was reached. This procedure is not specified by the method.	34
The specimen extractor disk did not meet the dimensional requirements.	68
The elapsed time from removal of the test specimen from the water bath to the maximum load determination exceeded thirty seconds.	58
The temperature of the mixture was not checked immediately prior to compaction to determine if it was within the limits of the established compaction temperature.	24
The temperature of the mixture was not within the limits of the established compaction temperature.	29
The free fall of the manual compaction hammer was not 457.200 ± 1.524 mm.	11
The water bath presented did not have a perforated false bottom or a shelf located at least 50.8 mm from its bottom.	15
The height of the compacted specimen was not 2.500 ± 0.005 inches $(63.50 \pm 1.27 \text{ mm})$.	5
The mixing and compacting temperatures were not determined from a temperature - viscosity chart.	52
Separate mixtures were not prepared for each test specimen.	15
When the specimen was tested, the temperature of the breaking head was not 21 to 38°C (70 to 100°F).	14
The depth of the water bath was not at least 152.4 mm.	17
The breaking head did not meet one or more dimensional tolerances specified by the method.	7
The specimen extractor did not extrude the specimen upward from the mold into the extension collar.	14
The mass of the manually - operated compaction hammer was not 4536 ± 9 g.	15
The temperature of the water bath was not maintained at $60 \pm 1^{\circ}$ C ($140 \pm 2^{\circ}$ F).	13
The face of the hammer was not heated to a temperature between 93.3 and 148.9°C (200 and 300°F) prior to compaction.	13
Filter paper or paper toweling was not placed on top of the sample.	5
The loading jack did not produce a uniform vertical movement of 50.8 mm per minute.	11
The bowl was not properly "buttered".	2

The wooden post of the compaction pedestal was in unsatisfactory condition or did not posess the specified dimensions.	15
The specimen mold holder was not mounted over the center of the wooden post or steel cap.	28
The sliding weight of the manually-operated hammer could not be removed to determining its mass.	4
The spatula used to spade the mixture was not heated.	6
The guide rods of the breaking head were not lubricated prior to testing.	4
The mold and contents were not reversed and 50 blows applied to the other side.	1
The steel cap did not meet the dimensional requirements.	3
A crater was not formed in the dry blended aggregate before the bituminous material was added to the mixture.	2
The inside surfaces of the specimen molds were not clean.	3
The mixing temperature was not maintained during mixing.	2
The specimen mold assemby was not preheated to 93 - 149°C prior to compaction.	3
A heater to offset excessive loss of heat was not presented.	3
The inside surfaces of the breaking heads were not clean.	2
The balance presented was not readable to 0.1 g.	1
The specimen was not dried overnight.	5
The sample was not spaded 15 times around the outside and 10 times in the middle.	8
Thermometers were not used to ensure that the asphalt and the aggregate temperatures were within recommended mixing and compacting ranges.	2
The specimen was not totally submerged in the water bath.	2
Paper was placed between the specimen and the breaking head.	4
The bath temperature was not checked with a thermometer.	1
The specimen was not measured and weighed.	3
The paper was left on the ends during the testing.	1
The entire batch was not placed in the mold.	7
The molds were sprayed with WD-40.	1
Stability and Flow were not determined.	6
A correction factor was applied to the laboratory compacted specimen.	5
The mechanical pedestal was used with the manual hammer.	1
It was not known if the hammer was heated to 200 - 300°F.	1
The specimen was cured at 290°F for 3 hours. This is not specified in the method.	1
The face of the compaction hammer was not clean.	1

The bituminous material was heated 25°F above the mixing temperature.	1
After 50 blows were applied to one side, the mold was placed on the extractor and pushed upward to allow the mold to fit in the base plate better.	1
The diameter of the face of the compaction hammer was not 98.4 mm.	1
The kneading movement of the compaction head was vertically restricted.	1
The aggregates were not heated to a temperature up to 50°F above the established mixing temperature.	2

 $AASHTO\ T246-Resistance\ to\ Deformation\ and\ Cohesion\ of\ Bituminous\ Mixtures\ by\ Means\ of\ Hveem\ Apparatus$

FOOTNOTE	OCCURRENCES
The laboratory does not perform the cohesion portion of the test.	38
The solid-wall metal follower did not have an outsider diameter of 101.20 ± 0.13 mm and a height of 139.70 ± 6.35 mm.	4
The calibration cylinder was not 140 ± 6.4 mm in height or 101.60 ± 0.13 mm in diameter.	11
The specimen was not transferred directly from the mold into the stabilimeter.	8
The specimens were not compacted in accordance with AASHTO T247.	4
The equipment did not include a rubber bulb for introducing air into the stabilometer.	2
The stabilometer base was not adjusted so that the distance from the bottom of the upper tapered ring to the top of the base was 89 mm.	2
The specimen was not brought to 60 ± 3 °C prior to the test.	1
The flow was not recorded at 500 lbf.	4
The calibration cylinder was not preheated to 60°C.	2
The push-out device did not have a smooth rate of travel.	2
The report did not include test temp, cohesion value, or asphalt content.	1
The movement of the compression machine was not 1.3 mm/min.	1
The equipment did not include a calibration cylinder.	1
The equipment did not include a push-out device for transferring specimens from molds to the stabilometer.	1
The procedure for adjusting the stabilometer was not performed.	1
The height of the follower was not 38.1 mm (1½ in.)	1
The procedure for preparing bituminous samples was not performed.	1
The height of the specimen was not measured in the mold.	1
The temperature of the oven was not maintained at $60 \pm 3^{\circ}$ C ($140 \pm 5^{\circ}$ F).	1
Stabilometer values were not reported at all of the pressures required by the method.	1

AASHTO T247 - Preparation of Test Specimens of Bituminous Mixtures by Means of California Kneading Compactor

FOOTNOTE	OCCURRENCES
The steel shim was not 6.4 mm by 19.1 by 63.5 mm.	10
The inside diameter of one or more molds was not 101.6 ± 0.13 mm.	7
The height of the specimen was measured while in the mold.	12
The procedure for preparing samples of bituminous mixture was not demonstrated.	8
A 38.1 mm high metal follower with a diameter of 101.2 ± 0.11 mm was not presented or did not meet the dimensional tolerances.	5
The round-nose steel rod was not 9.5 mm in diameter and 406.4 mm was not presented for inspection or did not meet the dimensional tolerances specified by the method.	1
The top follower presented did not have a height of 140 mm and an outside diameter of 101.2 ± 0.11 mm.	2
The equipment presented did not include a steel shim.	3
After compaction, the mold and mixture were not placed in an oven at 60°C (140°F) for 1.5 hours.	2
A feeder trough and paddle were not presented for inspection.	1
The trough was not preheated.	1
A paddle was not presented.	2
The asphalt and aggregates were not heated to the recommended mixing temperatures.	3
The mix was not rodded in ½ portions.	1
Only one shim was presented.	1
Test report did not include the temperature of compaction.	1
The mixture was not spread evenly in the trough.	1
The mix was not pushed through the trough into the mold.	1
The temperature of the oven was not maintained at $60 \pm 3^{\circ}$ C ($140 \pm 5^{\circ}$ F).	1

AASHTO T269 -Air voids

FOOTNOTE	OCCURRENCES
none.	

No. of Labs in Conformance: 220

 ${\bf AASHTO~T275-Bulk~Specific~Gravity~of~Compacted~Bituminous~Mixtures~Using~Paraffin-Coated~Specimens}\\$

FOOTNOTE	OCCURRENCES
The water bath was not equipped with an overflow outlet.	6
The specimen holder was not completely submerged in water.	9
After the specimen was coated with paraffin, it was not cooled for 30 minutes at room temperature before determining the mass.	2
The specimen was not suspended by a wire of the smallest practical size.	1
The temperature of the water in the bath for determining the immersed mass of the specimen was not 25 ± 1 °C (77 ± 2°F).	3
Room temperature was not 25 ± 5 °C.	1
The specimen was not dried to constant mass at 52 ± 3 °C.	3
The specimen was not dried overnight.	1
An ASTM 7C/7F thermometer was not presented.	1
The water bath was not filled to a constant water level.	1
The bulk specific gravity was not determined according to the method.	2

AASHTO T283 - Resistance of Compacted Bituminous Mixture to Moisture Induced Damage

FOOTNOTE	OCCURRENCES
The vacuum container was not filled with distilled water for specimen conditioning.	15
The edges of the loading strips had not been rounded by grinding.	29
The conditioned specimens were not supported above the bottom of the container by a spacer.	12
The equipment presented did not include an aluminum pan with a surface area of 75 to 100 sq. in. and a depth of 1 inch.	8
The temperature of the dry subset was not adjusted by soaking in a water bath at 25 ± 1 °C (77 ± 1.8 °F).	5
The temperature of the water bath was not maintained at 60.0 ± 1.0 °C (140.0 ± 1.8 °F).	4
The temperature of the water bath was not maintained at 25.0 ± 0.5 °C.	1
The dry specimens were not wrapped in plastic and placed in a 25°C water bath for 2 hours before testing.	10
The rate of movement of the testing machine head was not 50 mm (2 in.) per minute.	2
The equipment presented did not include a 10-mL graduated cylinder.	1
After being extruded from the molds, the samples were not stored for 72 to 96 hours at room temperature.	2
The specimens were not compacted by means of one of the specified methods.	1
The sample was not cured by the test method prior to compaction.	5
The volume of absorbed water was not calculated by the method.	29
The specimens were not covered by at least 1 in. of water.	2
10-mL of water was not added to the conditioned subset before placing them in the freezer.	1
Loading strips were not presented.	1
The vacuum container was not filled with distilled water.	1
The freeze-thaw conditioning was not demonstrated.	1
The vacuum system presented did not include a manometer or vacuum gauge.	1
The widths of the loading strips for the 4 inch diameter specimens were not 0.5 inches.	2
The specimens were not sorted so that the average air voids of the 2 subsets were approximately equal.	2
The conditioned specimens were not placed in a water bath at 60°C for 24 hours.	1
The specimens were not inspected for stripping.	3
The upper loading strips did not have a radius of curvature equal to the nominal radius of the test specimen.	2
The water bath was not equipped with an overflow outlet.	2
The bulk specific gravity of each partially saturated specimen was not determined.	2
The specimens were not left submerged for 5 - 10 minutes after the vacuum was applied.	2

The procedure was not demonstrated.	1
The specimens were not grouped into 2 subsets so that the two groups have similar average air voids.	1
The tensile strength was not determined.	1

AASHTO T287 - Asphalt Content of Bituminous Mixtures by the Nuclear Method

FOOTNOTE	OCCURRENCES
A satisfactory steel straightedge approximately 450 mm in length was not presented for inspection.	3
The thickness of the flat metal compaction plate was not at least 3/8 inch.	4
The moisture content of the mixture was not determined on a representative sample according to the distillation procedure described in T110.	5
The sample pan was not filled in two layers.	1
It was understood that the statistical stability test had not been performed at least once a month.	1
The test sample was not the result of splitting or quartering a larger sample.	1
The temperature of the sample was not determined before testing to determine if it was within 6°C (10°F) of the calibration temperature.	4
The samples were not compacted at 250 - 300°F.	1
A background radiation check was not performed daily.	1
The sample pans were lined with a paper bag.	1
A calibration curve was not presented.	1
A balance readable to 0.1 g was not presented.	1
The sample was not dried to constant mass at 110 ± 5 °C.	1
The mass was not adjusted to be approximately equal to that of the calibration sample.	1

TP4 - Gyratory Compactor

FOOTNOTE	OCCURRENCES
The compaction mold and base plate were not placed in an oven at the required compaction temperature for 30 to 60 minutes prior to compaction.	4
The preparation of asphalt mixtures was not demonstrated.	15
The mixture was not placed into the mold in one lift.	11
The height of one or more of the compacted test specimens was not 115 ± 5 mm.	1
It was understood that the ram pressure, angle of gyration, gyration frequency, and LVDT had not been verified.	11
It was understood that the uncorrected and relative densities are not calculated.	1
The calibration of the angle was not verified.	5
The mix was not stirred every 60 ± 5 minutes.	14
The gyratory compactor did not shut off at 75, 115, 160, or 205 gyrations.	4
The sample was not aged at 135°C for 4 hours ± 5 minutes (according to PP2).	7
Levelling off gyrations were performed.	64
The molds were not 149.90 to 150.00 mm.	1
A pressure of 600 ± 18 kPa was not applied.	1
It was understood that the mixing and compaction temperatures were not determined from the temperature - viscosity chart.	11
The angle was not $22.00 \pm 0.35 \text{ mrad } (1.25 \pm 0.02^{\circ}).$	6
The sample was not placed in a shallow, flat pan and aged according to PP2 or at 135.0 ± 3.0 °C for 4 hours.	5
Separate mixtures were not prepared for each test specimen.	1
The thickness of the walls of the mold was not at least 7.5 mm.	1
The aggregate was not thoroughly dry mixed prior to the addition of binder.	1
The equipment was not of the proper dimensions to produce a 115 mm high specimen.	1
The gyratory compactor was not lubricated prior to molding the specimen.	1
The temperature was not within the limits of the established compaction temperature.	1

T308 - Ignition Oven

FOOTNOTE	OCCURRENCES
The internal balance was not accurate to 0.1 g.	3
The ignition oven presented was not equipped with an audible alarm or indication light to signal the completion of the test.	1
The furnace scale did not display the mass of the sample.	1
The temperature of the oven used was not maintained at $125 \pm 5^{\circ}\text{C}$ (257 ± 9 #).	8
It was understood that the calibration factors are not determined at the laboratory.	14
The calibration factor was not determined in accordance with the method.	39
It was understood that the calibration procedure has not been repeated each time there is a change in the mix ingredients or design.	8
The test specimen was not the result of splitting or quartering a larger sample.	12
The mass of the test specimen did not conform to the minimum requirement for the nominal maximum aggregate.	12
The method specifies that the mass of the test specimen shall not be more than 400 g greater than the minimum requirements for the nominal maximum aggregate.	17
The ignition furnace was not preheated to a temperature of 538#C (1000#).	4
The moisture content of the sample was not determined on a representative sample according to the distillation procedure described in T110.	7
The sample was not dried to constant mass at 105 ± 5 °C (221 ± 9 °F) before it was tested.	18
The initial mass of the sample was not entered into the oven's computer system.	3
The total mass of the sample, basket(s), catch pan and basket guards was not displayed by the furnace scale.	4
The test was not continued until the change in mass of the sample did not exceed 0.01 percent for three consecutive minutes.	2
The protective cage presented was not used when cooling the sample.	4
The sample was not cooled for at least 30 minutes after removal from the furnace.	2
The sample was not repeatedly burned and weighed until a constant mass was attained.	4
The report did not include test method A or B.	54
The 5 g comparison was not made.	5
The printed ticket was not included with the report.	1
The sample was not spread evenly in the sample baskets.	1
The baskets, sample, and catch pans were not weighed together.	2
A blank comparison for gradation was not made.	3
The baskets were preheated during the calibration procedure.	1

The sample was not burned for at least 45 minutes (Method B).	1
The report did not include total % loss, test temp, calibration factor, or other.	7
The calibrations were not repeated at 482°C if the calibration factor exceeds 0.5%.	1
The total mass of the sample, basket(s), catch pan and basket guards displayed by the furnace scale did not agree with the actual total mass within 5 g.	5
The ignition oven was not operating properly during the assessment.	1
Pressing stop did not unlock the door.	2
The initial mass of the baskets was not determined.	1